

Multi-Specie Reacting Subsonic Inlet Boundary Condition Implementation in LAURA 5 with Applications

ALIREZA MAZAHERI AND PETER A. GNOFFO

Aerothermodynamics Branch

NASA Langley Research Center, Hampton, VA 23681

ABSTRACT

A description of a model and boundary condition implementation required for simulating the influence of Hypersonic/Supersonic Retro Propulsion (H/SRP) and Reaction Control Surface (RCS) of planetary entry vehicles using LAURA 5 is provided. A subsonic reacting boundary condition is required to simulate the jet effects with the surrounding vehicle environment. The paper presents and discusses results of two cases with RCS and retro propulsion jets to show the model capabilities.